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ABSTRACT

The purpose of this study was to determine if the fiscal year 1972 funding of vocational and technical education by the Illinois Division of Vocational and Technical Education had changed from the inefficient funding patterns previously investigated for fiscal year 1971. The conclusions of the 1971 study were that the funding was not economically efficient and that it tended to place little emphasis on the needs variables such as assessed valuation, school dropouts rates, unemployment rates, aid to dependent children payments, and income levels. Further, the funding formula seemed to discriminate in favor of Chicago suburban schools with higher income levels and against schools in lower income districts throughout the State. The findings of the 1972 fiscal year study were that the funding formula was still economically inefficient in that, given a choice between two programs promising the same manpower benefits, it would fund the more expensive program thereby spending more money than needed. The 1972 funding patterns was slightly more attentive to need factors but still funded disproportionately those districts with high income levels. It was recommended that consideration be given to alternative funding methods such as performance contracting, discretionary contracting, the use of private proprietary schools, and funding on a regional or area basis. (MF)

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# THE DISTRIBUTION AND EFFECTS OF VOCATIONAL AND TECHNICAL EDUCATION FUNDING IN ILLINOIS IN FISCAL YEAR 1972

by James V. Koch
Chairman, Department of Economics
Illinois State University

Conducted for the

## State of Illinois Advisory Council on Vocational Education

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Mid State Educational Consultants

May, 1973

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A report of:

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Chapter I

## SUMMARY OF THE STUDY AND THE FINDINGS

In August, 1972, James V. Koch and Randyl D. Elkin presented a study to the State of Illinois entitled An Analysis of the Process, Intent, Distribution and Effects of Priority Funding for Vocational and Technical Education in the State of Illinois.[1] The conclusions of that study were that funding of vocational and technical education by the Division of Vocational and Technical Education (DVTE) was not economically efficient by usual standards and that it tended to place little emphasis upon "need" variables such as assessed valuation, school dropout rates, unemployment rates, the frequency of aid to dependent children payments, and income levels. Further, the DVTE funding formula seemed to discriminate in favor of Chicago suburban schools with higher income levels and against schools in lower income districts throughout the state. The purpose of this study was to determine if DVTE in FY-1972 had changed from the patterns noted above.

This study, then, is a follow-up of the study of FY-1971 funding. The findings are as follows: (1) DVTE funding formula is once again found to be economically inefficient in that it rewards those districts

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[1] Koch, Elkin, An Analysis of the Process, Intent, Distribution and Effects of Priority Funding for Vocational and Technical Education in the State of Illinois, State of Illinois Advisory Council on Vocational Education, Springfield, Illinois, August, 1972.

which pursue the most expensive programs. Given a choice between two programs which promise the same manpower benefits, the DVTE formula will fund the most expensive program and therefore spends more money than needed; (2) the pattern of funding by DVTE observed in FY-1972 is slightly more attentive to "need" factors such as those noted above, but still funds disproportionately those districts with high income levels, and, (3) the Advisory Council should give consideration to alternative funding methods such as performance contracting, discretionary contracting, the use of private proprietary schools, and funding on a regional or area basis.

## Chapter II

## BACKGROUND AND PURPOSE OF THE STUDY

The funding patterns of the Division of Vocational and Technical Education (DVTE) have already been examined for FY-1971 in a report entitled, An Analysis of the Process, Intent, Distribution and Effects of Priority Funding for Vocational and Technical Education in the State of Illinois.[1] The conclusions of this report were that FY-1971 fund distribution by the DVTE violated accepted economic principles concerning efficiency by tending to place very little emphasis upon "need" variables such as assessed valuation in a district, school dropout rates, unemployment rates, the frequency of aid to dependent children in a district, and income levels in a district. It was also found that the DVTE funding formula tended to discriminate in favor of higher income districts and against lower income districts (other things held constant). These results led to the current study, which is a replica of the FY-1971 study using the newly available FY-1972 data.

The specific purposes of this study, as stated in the project proposal, were to: (1) evaluate the criteria being used by the DVTE in

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[1] Koch, Elkin, An Analysis of the Process, Intent, Distribution and Effects of Priority Funding for Vocational and Technical Education in the State of Illinois, State of Illinois Advisory Council on Vocational Education, Springfield, Illinois, August, 1972.

FY-1972 in terms of economic efficiency; (2) determine to what extent the FY-1972 funding by DVTE can be explained in terms of the "need" variable cited above; and, (3) specify, if necessary, alternative funding criteria and formulas which would minimize the cost of obtaining the same manpower objectives the DVTE achieved in FY-1972.

Chapter III

## THE DVTE PRIORITY FORMULA

The priority funding formula used by the DVTE for FY-1972 fund distribution was the same formula which we criticized so strenously in our report on FY-1971 DVTE funding. We continue to believe, indeed, we can demonstrate, that the DVTE can easily realize same manpower objectives that it is achieving now, and do so at lower cost if it is willing to accept an alternative funding formula. We will later show that the DVTE is spending approximately $675 per district more on funding under its formula than is necessary. Needless to say, the release of $675 per district would enable DVTE to accomplish much more than it is currently and would enable DVTE to fund new and expanded programs in many areas. This $675 per district can be saved simply by altering the funding formula; it will be saved without reducing the manpower benefits derived.

The DVTE funding formula assigns a priority ranking A through D (A best, D worst) in two categories to every course or project that might be funded. The two categories are: (1) the manpower benefits derived from the course; and, (2) the cost of the course. The best priority ranking a course can obtain is an A priority in both benefits and costs. An A ranking means that the course yields high manpower benefits and is also very expensive. The two letter rankings (benefits and costs) are then averaged in order to obtain an overall priority

ranking for the occupation or course. For example, "metalworking" is given a "B" differential cost priority and a "C" manpower priority based upon Department of Labor information. The "B" and "C" ratings are averaged to an overall "B" rating.

The problem with this priority system is that it funds expensive courses and programs in preference to less expensive courses and programs that would accomplish exactly the same manpower benefits. For example, the DVTE formula would fund a million dollar project giving "C" level manpower benefits before it would fund a one thousand dollar project giving the same benefits. The cost-minimizing way to accomplish a given end is, of course, to fund the least expensive course or project that yields a given level of manpower benefits. More specifically, the priority rankings on cost in the DVTE formula should be reversed. Highest cost programs and courses should be given the lowest priority; lowest cost courses and programs should be given highest priority. It may well happen that an expensive program or course yields such substantial manpower benefits that it is nonetheless preferred to the less expensive program or course. That is desirable and reflects the fact that the expensive course yields more manpower benefits per dollar than does the less expensive course. That is the essence of economic efficiency.

Putting the above a slightly different way, we should be very surprised to find that a businessman always preferred the more expensive of the two machines even though the two machines were doing exactly the same job and were of exactly of the same quality. This type of behavior

is uneconomic and inefficient and the DVTE, by continuing in FY-1972 the priority ranking scheme that it used in FY-1971, is engaging in similar behavior.

The $675 figure which was cited earlier is the savings per district that could be realized by the DVTE if it were to reverse its cost priorities as outlined above. That is, exactly the same manpower benefits could be obtained by paying districts (perhaps not exactly the same districts or the same courses and programs) an average of $675 less each year. Note that savings amounts to $67,500 for 100 districts and $337,500 for 500 districts. It is not something to sneeze at. Such monies could be used to fund new programs, to expand existing programs, or could be used elsewhere in the State of Illinois budget.

Chapter IV

## DVTE FUNDING IN FY-1972 AND "NEED" FACTORS

The study of DVTE funding in FY-1971 chose a random sample of 100 districts and is the basis of the work described here concerning DVTE funding in FY-1972. The work reported in this section ascertains whether or not the FY-1972 funding of DVTE is or is not closely related to "need" variables reflecting socioeconomic conditions. The methodology used is multiple linear regression analysis where:

FY-1972 Net Reimbursement to a District = f("Need" Variables).

The "need" variables, and the symbols that represent them in this study, are as follows:

ADCPTHPU = Number of children receiving aid to dependent children per 1,000 children in the county in which the district is located. Source: Aid to Dependent Children--Cases Eligible to Receive Both Assistance and Medical Care, October, 1972 (Springfield, Illinois: Division of Research and Statistics, Department of Public Aid, State of Illinois, 1972).

HSDROPOT = High School dropouts in a district as a percentage of grade 9-12 enrollments. Source: High School Dropouts from 1971-1972 Annual School District Report. (Spring-

field, Illinois: Office of the Superintendent of Public Instruction, State of Illinois, November 29, 1972).

ASSESVAL = Dollars of assessed valuation per pupil in a district. Source: 1970 Assessed Valuations and 1971 Tax Rates, Descending Order, Illinois Public Schools (Springfield, Illinois; Office of the Superintendent of Public Instruction, Circular Series A, No. 292, 1972).

UNEMPLCO = Percentage of the labor force unemployed in the county in which the district is located. Source: A Proposed State Plan for the Administration of Vocational and Technical Education in Illinois (Springfield, Illinois: Board of Vocational Education and Rehabilitation, Division of Vocational and Technical Education, Map 2.1 (C), n.p., 1972).

INCOMEPP = Average income of the population of the district per pupil in the district. Source: Data provided by Professor Alan Hickrod, Professor of Educational Administration, Department of Education Administration, Illinois State University, Normal, Illinois.

While 100 districts were sampled, the INCOMEPP variable was available for only 86 districts, and therefore the effective sample size was 86.

The multiple linear regression of net reimbursement of DVTE in FY-1972 upon the five "need" factors cited above produced the regression in Table 1.

TABLE I

DVTE FY-1972 FUNDING AND "NEED" FACTORS

| | | | |
|---|---|---|---|
| Net Reimbursement FY-1972 = | -23,734 | + 154.2 ADCPTHPU | + 4,263 HSDROPOT |
| | (8189) | (50.8) | (1,246) |
| | t = 2.89 | t = 3.03 | t = 3.42 |
| | - .093 ASSESVAL | - 3.29.3 UNEMPLCO | + 2.27 INCOMEPP |
| | (.091) | (94.5) | (.68) |
| | t = 1.01 | t = 3.49 | t = 3.33 |

N = 86

$R^2$ = .41

F = 7.66

THE ROLE OF AID TO DEPENDENT CHILDREN The FY-1972 funding of DVTE is positively and significantly related to the number of children receiving aid to dependent children in the county where the district is located. The typical district had about 65 aid to dependent children per 1,000 children in the district. An increase in that number from 65 to 66 would bring the district $154 additional from DVTE, other things held constant. The coefficient upon which this particular estimate is based is significant at the .01 level. This funding represents a slightly increased emphasis upon the aid to dependent children factor from FY-1971.

THE ROLE OF HIGH SCHOOL DROPOUTS The FY-1972 funding of the DVTE is positively and significantly related to the number of high school dropouts in a district as a percentage of the total number of school children in grades 9-12. A typical district had a dropout percentage of about 4 percent. A one percent increase in this figure, to five percent, would result in an increase of DVTE funding, other things held constant, of $4,263. The coefficient upon which this estimate is based is significant at the .01 level. The emphasis upon funding with respect to high school dropouts represents a slight increase over FY-1971 observed funding.

THE ROLE OF ASSESSED VALUATION The FY-1972 funding of the DVTE is negatively related to the assessed valuation in a district per pupil in that district. However, the coefficient in the regression is not significant even at the .10 level. Hence, the negative sign is not one in which we can place great

confidence. We are unable to reject the hypothesis (at the 10 percent level) which states that assessed valuation in a district has no effect upon DVTE funding in FY-1972.

THE ROLE OF THE RATE OF UNEMPLOYMENT The FY-1972 funding of the DVTE is negatively related to the rate of unemployment in the county where the district is located. The coefficient on the unemployment rate variable is -329. This implies that a one percent increase in the rate of unemployment would actually decrease funding from the DVTE, other things held constant. The coefficient upon which this estimate is based is statistically significant at the .01 level. This development represents a deterioration from FY-1971. In FY-1971, the rate of unemployment proved to be an unimportant and statistically insignificant predictor of DVTE's funding. This is not so, however, in FY-1972.

THE ROLE OF INCOME The FY-1972 funding of the DVTE is strongly and positively related to the average income of the population in the district receiving funds. The higher the income of the district, the more funds received from DVTE in FY-1972. This, too, represents a deterioration from FY-1971 where income did not prove to be a statistically significant predictor of DVTE funding. The average income of the population in the districts surveyed was over $9,000. A one dollar increase in this average income would actually carry with it (other things held constant) more than a two dollar increase in DVTE payments in FY-1972. This is clearly not what one would expect and most observers would regard this type of funding as highly undesirable.

Coupled with the revelation that DVTE FY-1972 funding also is skewed in favor of low unemployment rates, a startling and undesirable picture emerges. The FY-1972 funding of DVTE tends, if anything, to discriminate in favor of high income, low unemployment areas. The Mt. Prospect-Centralia paradox that was pointed out in the FY-1971 study continues to hold true under these circumstances. Mt. Prospect will continue to receive disproportionately high DVTE payments in view of the income levels, the programs pursued, and "need" factors.

Chapter V

## DVTE FUNDING IN FY-1972 IF ECONOMIC EFFICIENCY CRITERIA USED

We have already suggested earlier that money could be saved if economic efficiency criteria were used instead of the current DVTE funding formula. The identical sample of districts was used. However, in this instance, the multiple linear regression which was run was the following:

Economic Efficiency Funding Suggested by Koch = f("Need" factors)

The dependent variable in this case, economic efficiency funding, is simply the current DVTE funding formula except that the DVTE's current cost priorities are reversed. Given any level of manpower benefits, less expensive programs are preferred under the Koch economic efficiency priority funding scheme.

The independent variables, the "need" factors, are the following:

ADCPTHPU = Number of children receiving aid to dependent children per 1,000 children in the county in which the district is located. Source: Aid to Dependent Children--Cases Eligible to Receive Both Assistance and Medical Care, October, 1972 (Springfield, Illinois: Division of Research and Statistics, Department of Public Aid, State of Illinois, 1972).

HSDROPOT = high School dropouts in a district as a percentage of grade 9-12 enrollments. Source: High School Dropouts from 1971-1972 Annual School District Report. (Springfield, Illinois: Office of the Superintendent of Public Instruction, State of Illinois, November 29, 1972).

ASSESSVAL = Dollars of assessed valuation per pupil in a district. Source: 1970 Assessed Valuations and 1971 Tax Rates, Descending Order, Illinois Public Schools (Springfield, Illinois: Office of the Superintendent of Public Instruction, Circular Series A, No. 292, 1972).

UNEMPLCO = Percentage of the labor force unemployed in the county in which the district is located. Source: A Proposed State Plan for the Administration of Vocational and Technical Education in Illinois (Springfield, Illinois: Board of Vocational Education and Rehabilitation, Division of Vocational and Technical Education, Map 2.1 (C), n.p., 1972).

INCOMEPP = Average income of the population of the district per pupil in the district. Source: Data provided by Professor Alan Hickrod, Professor of Educational Administration, Department of Educational Administration, Illinois State University, Normal, Illinois.

Table 2 contains the multiple linear regression of Koch's Efficiency Funding Scheme upon the "need" variables.

THE ROLE OF AID TO DEPENDENT CHILDREN Using the economic efficiency criterion, the response of DVTE funding to the number of children per 1,000 children in a district who are supported by aid to dependent children payments would increase slightly. The coefficient upon which this estimate is based is significant at the .01 level. This is notable in that it means that not only is the use of the economic efficiency funding formula less expensive, but also it is just as responsibe to "need" variables as is the current DVTE funding formula.

THE ROLE OF HIGH SCHOOL DROPOUTS Slightly less responsiveness in funding to the number of high school dropouts is indicated when the economic efficiency criterion is used for funding. However, the lessened emphasis is very small (about $200 per one percent increase in the number of high school dropouts in a district). Further, the statistical significance of the high school dropout variable is substantially increased when the economic efficiency funding formula is used. That is, we can have more faith in the estimate provided by the economic efficiency formula than we can in the estimate provided by the current DVTE formula. Stating this another way, we can be more confident that the economic efficiency formula actually results in monies being distributed in the direction of districts where the percentage of high school dropouts is large. We can be less confident that this is actually happening when the DVTE formula is utilized as a basis for the distribution of funds to districts.

TABLE 2

DVTE FY-1972 FUNDING AND "NEED" FACTORS IF ECONOMIC EFFICIENCY CRITERION IS USED

| | | | | |
|---|---|---|---|---|
| Economic Efficiency Funding Scheme | = - 26,789<br>(7,436)<br>t = 3.60 | + 157.7 ADCPTHPU<br>(48.0)<br>t = 3.27 | + 4,014<br>(1018)<br>t = 3.94 | - 1.34 ASSESVAL<br>(.065)<br>t = 2.06 |
| | | + 133.1 UNEMPLCO<br>(74.9)<br>t = 1.79 | + .175 INCOMEPP<br>(.244)<br>t = .71 | |

N = 86

$R^2$ = .49

F = 8.38

THE ROLE OF ASSESSED VALUATION If DVTE funding is effectively related to "need" variables, then it should be negatively related to assessed valuation in a district. While the FY-1972 funding of the DVTE was negatively related to assessed valuation, the partial regression coefficient of the assessed valuation variable is statistically significant at the .05 level and the relationship is the desired negative (inverse) relationship. This is yet another example of the economic efficiency funding formula's superiority. Once again, not only is the economic efficiency funding formula a cheaper means to accomplish a given goal, but also it pays more attention to the "need" variables.

THE ROLE OF UNEMPLOYMENT RATES Whereas the DVTE FY-1972 funding formula actually resulted in less money being given to areas and districts with high rates of unemployment (other things held constant), just the opposite is true when the economic efficiency criterion is utilized. Using the economic efficiency criterion, a one percent increase in the rate of unemployment will increase payments to the district by $133. Quite the opposite was the case for the current DVTE formula. The partial regression coefficient upon which the $133 estimate is based is significant at the .05 level. This is yet another example of the current DVTE formula not really emphasizing "need" characteristics.

THE ROLE OF INCOME One of the less desirable aspects of the current DVTE formula for funding is that (other things held constant) it tends to discriminate in favor of districts in which

incomes are high and against districts where income is low. In the FY-1971 study, this resulted in the Mt. Prospect-Centralia example which we have previously discussed. The economic efficiency criterion, however, reverses this relationship and tends to fund more heavily those districts with lower income levels. It would be incorrect to overemphasize this change, however. The partial regression coefficient upon which this estimate is based is not significant at the .10 level even though it has the desired sign. Hence, it is more correct to state that the economic efficiency criterion for funding cannot be shown to be anything but neutral with respect to income in the districts funded. This is a fancy way of stating that income apparently is not much of a factor in determining funding under the economic efficiency criterion. This is nevertheless an improvement over the current DVTE formula in that DVTE funding in FY-1972 tended to go preferentially to high income districts.

Chapter VI

## MONEY SAVINGS DUE TO USE OF ECONOMIC EFFICIENCY CRITERIA IN FY-1972

The Appendix to this report contains the priority ratings given by the DVTE in FY-1972 for each occupation, course, and program with which they are involved. The Appendix also contains the revised priority ratings which would obtain if Koch's economic efficiency priorities were used. As stated previously, the cost of realizing the manpower benefits equal to those realized by the DVTE is fully $675 per district cheaper when economic efficiency criteria are applied. Further, as we have seen above, the application of economic efficiency criteria does not seem to harm the relationship of DVTE funding to "need" factors. If anything, the economic efficiency priority scheme is more responsive to "need" factors than the current DVTE funding priorities.

The $675 figure was obtained by determining the total cost of funding under the DVTE formula, subtracting the total cost of funding under the economic efficiency formula, and dividing by the number of districts funded. The $675 figure could equivalently be found by multiplying the partial regression coefficients found in Tables 1 and 2 by the average values of each variable and summing the costs derived in that fashion on a per district basis.

The full import of the $675 savings per district can be seen in Table 3. If 100 districts are funded by DVTE, then the total savings

obtained by using the economic efficiency funding is $67,500. Similarly, if 300 districts were funded, then the total savings would be $202,500; if 500 districts were funded, then the total savings would be $337,500. Whatever the number of districts involved, the savings are substantial and would fund significant new programs, the expansion of existing programs, or other needs in state government.

The savings outlined in Table 3 can be realized by altering the funding formula currently used by DVTE. It may be, however, that the DVTE should not use any formula and instead allocate funds on a different basis, for example on a performance contracting basis. We will consider such alternatives in the next section.

Table 3

TOTAL SAVINGS BY DVTE UNDER ECONOMIC EFFICIENCY FUNDING

| Number of Districts Funded by DVTE | Total Savings By DVTE Using Economic Efficiency |
|---|---|
| 100 | $ 67,500 |
| 200 | 135,000 |
| 300 | 202,500 |
| 400 | 270,000 |
| 500 | 337,500 |
| 600 | 405,000 |
| 700 | 472,500 |
| 800 | 540,000 |
| 900 | 607,500 |
| 1000 | 675,000 |

Chapter VII

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Four major findings have resulted from this study:

1. The DVTE continues to use a funding formula which is inefficient by usual economic standards in that it chooses to fund expensive programs rather than cheaper programs which yield the same benefits.

2. The FY-1972 funding by DVTE given evidence that attention to "need" factors has increased; however, the increase in attention is small and FY-1972 DVTE funding still gives little evidence that "need" factors are an important rationale for funding.

3. The evidence produced here indicates that FY-1972 DVTE funding discriminates in favor of districts whose average income levels are high and whose rates of unemployment are low; conversely, the formula utilized now discriminates against districts whose average income levels are low and whose rates of unemployment are high.

4. By altering the funding formula it now uses to conform to notions of economic efficiency, the DVTE not only would have saved an average of $675 per district in FY-1972, but also would have funded districts in a fashion that was more responsive to "need" factors.

It is important that the DVTE (and the Advisory Council) consider alternative modes and methods of funding. This report has demonstrated

that the formula currently used by DVTE needs alteration and such alterations could be easily accomplished. However, the entire concept of formula funding needs to be examined. Formula funding may not be the most efficient manner in which to fund vocational and technical education. It is perhaps the easiest in the sense of being rigidly mechanical and not requiring much imagination. Nonetheless, it has not been an unqualified success.

One realistic alternative which should be explored by the DVTE and the Advisory Council is a system of performance contracting. Performance contracting has emerged in the last decade as an ever more frequent allocational strategy for school boards and others. Under a performance contract, the contractee agrees to perform certain tasks in return for a certain fee. In a DVTE context, a contractee (possibly a school district) would sign a contract in which they agreed to perform certain vocational and technical education tasks and perhaps to raise student knowledge or skills to a certain level. Failure to fulfill the contract would result in non-payment of the contractual fee or a forfeiture of portions of that fee. Performance contracting has not been a notable success in elementary schools; however, vocational and technical education is a quite different environment and may be susceptible to this type of arrangement. A small pilot program may be a wise investment at this time.

The current DVTE formula gives the DVTE very little discretion concerning how its funds are distributed. That is, the formula is constructed, and the distribution that results is cut and dried from that point onward. This may seriously reduce flexibility. Within a given year, emergency needs may arise which cannot be adequately

handled within a formula framework. Further, a formula framework for funding does not enable the DVTE to reward or penalize especially good or bad programs. The DVTE and the Advisory Council should therefore consider increasing the amount of discretionary funds that the DVTE might distribute each year. Such discretionary funding must be monitored closely since it could lead to inefficiency and abuses. However, the essence of managerial competence is to do the correct thing at the correct time. If it is found that DVTE personnel are not capable of exercising discretion and/or that they exercise it wrongfully, then either discretion must be withdrawn or managers must be fired. An increase in discretion on the part of DVTE managerial personnel has the potential to greatly increase benefits and responsiveness; it could, however, lead to just the opposite. In the latter case, either the discretion or the managers must be removed.

FY-1972 funding was done primarily on a state-wide basis. Conversations with DVTE personnel reveal that they frequently refer to the needs of a particular area when defending a particular course or pattern of funding. In response to a question about the state-wide advisability of a given course or pattern of funding, DVTE personnel often reply that "...such personnel are in great need in XYZ County." This simply points out that the manpower needs and requirements of various areas of the State of Illinois are extremely diverse. Since this is the case, consideration should be given to distributing funds on a regional or area basis and then having regional or area centers make the final allocation to individual districts. Such a system might attune the funding process more closely to the needs of particular areas and districts. At the

same time, it could result in the erection of an intermediate level of bureacracy and could cause administrative costs to skyrocket unless watched closely.

An additional policy alternative which is worthy of consideration is the possible utilization of private proprietary schools in the area of vocational and technical education. Current DVTE funding in the area of vocational and technical education virtually ignores the possible use of private proprietary schools. Private proprietary schools argue strongly that they can perform the identical vocational and technical education tasks performed by public districts and do so better (and cheaper) because: (1) the private proprietary schools have this as their sole purpose and this is their only reason for existence; (2) they are closer to the actual businesses where graduates will become employed; and, (3) they do not maintain the expensive bureaucracies which public districts maintain.

The previous allegations by the private proprietary schools have yet to be evaluated. The Advisory Council should give strong consideration to funding a study of the relative efficiency of public districts and private proprietary schools in the area of vocational and technical education. Such a study must overcome the difficulty that has plagued previous attempts to evaluate the relative worth of private proprietary schools, namely, the specification of innumerable job skills and attitudes which are said to result from training. It is very easy to get bogged down in such a study in concepts such as job happiness and the like. If such difficulties can be overcome, then such a study should be made, for the private proprietary school represents a major

unexplored alternative to current vocational and technical education programs and funding.

In sum, then, we recommend that the Advisory Board consider the following alternatives: (1) performance contracting; (2) increased discretionary contracting; (3) regional and area fund distribution; and, (4) the use of private proprietary schools.

## DIVISION OF VOCATIONAL AND TECHNICAL EDUCATION

Listing of Priorities For Program Funding
For FY-1972 Occupational Training
Programs Only

| Office of Education Code Number | Occupation or Course Name | Differential Cost Priority | Manpower Priority | Average Priority On Which Funding Is To Be Made | Economic Efficient Priority |
|---|---|---|---|---|---|
| 01.0100 | Agricultural Production | C | D | C | C |
| 01.0101 | Animal Science | C | D | C | C |
| 01.0102 | Plant Science | C | D | C | C |
| 01.0103 | Farm Mechanics | B | C | B | C |
| 01.0104 | Farm Business Management | C | C | C | C |
| 01.0200 | Agricultural Supply and Service | B | C | B | C |
| 01.0201 | Agricultural Chemicals | B | C | B | C |
| 01.0202 | Feeds (Processing & Distribution) | C | C | C | C |
| 01.0203 | Seeds (Processing & Distribution) | C | C | C | C |
| 01.0204 | Fertilizers (Plant Food) | B | C | B | C |
| 01.0300 | Agriculture Mechanics | A | C | B | C |
| 01.0301 | Agricultural Power and Machinery | A | D | B | D |
| 01.0302 | Agricultural Struct. and Conveniences | C | D | D | C |
| 01.0303 | Soil Management | C | C | C | C |
| 01.0304 | Water Management | C | C | C | C |
| 01.0305 | Agricultural Mechanics Skills | B | C | B | C |
| 01.0306 | Agricultural Construction and Maintenance | C | D | C | C |
| 01.0307 | Agricultural Electrification | B | C | B | C |
| 01.0400 | Agricultural Products | B | D | C | D |
| 01.0401 | Dairy Products | B | D | C | D |
| 01.0402 | Nonfood Products | B | D | C | D |
| 01.0500 | Ornamental Horticulture | A | C | B | C |
| 01.0501 | Arboriculture | B | C | B | C |
| 01.0502 | Floriculture | B | C | B | C |
| 01.0503 | Greenhouse Operations and Management | A | C | B | C |

| Office of Education Code Number | Occupation or Course Name | Differential Cost Priority | Manpower Priority | Average Priority On Which Funding Is To Be Made | Economic Efficient Priority |
|---|---|---|---|---|---|
| 01.0504 | Landscaping | A | C | B | C |
| 01.0505 | Nursery Operation and Management | A | C | B | C |
| 01.0506 | Turf Management | A | C | B | C |
| 01.0600 | Agricultural Resources | A | C | B | C |
| 01.0601 | Forests Conservationist | C | B | B | B |
| 01.0602 | Recreation Director (Park Ranger-Manager) | B | B | B | B |
| 01.0603 | Soil Conservationist | C | B | B | B |
| 01.0604 | Wildlife | C | B | B | B |
| 01.0605 | Water Conservationist | A | B | B | C |
| 01.0607 | Fish (Including Farms and Hatcheries) | B | C | B | C |
| 01.0608 | Range (Ag. Resources) | A | C | B | C |
| 01.0700 | Forestry | A | D | C | D |
| 01.0702 | Forest Protection | B | C | C | C |
| 01.0703 | Logging | C | D | D | C |
| 01.0704 | Wood Utilization | B | D | C | D |
| 01.0706 | Special Products (Forestry) | B | D | C | D |
| 04.0100 | Advertising Services | C | C | C | C |
| 04.0200 | Apparel & Accessories (Sales) | C | C | C | C |
| 04.0300 | Automotive Sales | C | C | C | C |
| 04.0400 | Finance and Credit | C | B | C | B |
| 04.0500 | Floristry (Sales) | C | C | C | C |
| 04.0600 | Food Distribution (Sales) | C | C | C | C |
| 04.0700 | Food Services (Sales) | C | C | C | C |
| 04.0800 | General Merchandise (Sales) | C | C | C | C |
| 04.0900 | Hardware, Bldg. Materials (Sales) | C | C | C | C |
| 04.1000 | Home Furnishings (Sales) | C | B | C | B |
| 04.1100 | Hotel and Lodging Services | C | B | B | B |
| 04.1200 | Industrial Marketing (Sales) | C | B | C | B |
| 04.1300 | Insurance (Sales) | C | C | C | C |
| 04.1400 | International Trades (Sales) | C | C | C | C |
| 04.1500 | Personal Services Sales | C | C | C | C |
| 04.1600 | Petroleum (Sales) | C | C | C | C |
| 04.1700 | Real Estate (Sales) | C | C | C | C |
| 04.1800 | Recreation & Tourism Services | C | C | C | C |
| 04.1900 | Transportation (Sales) | C | C | C | C |
| 04.2000 | Retail Trade | C | C | C | C |
| 04.3100 | Wholesale Trade | C | C | C | C |
| 04.9900 | Distributive Education Mktg. - Gen. | C | C | C | C |
| 04.9901 | Small Business Mngmt. | C | C | C | C |
| 07.0100 | Dental | A | A | A | B |

| Office of Education Code Number | Occupation or Course Name | Differential Cost Priority | Manpower Priority | Average Priority On Which Funding Is To Be Made | Economic Efficient Priority |
|---|---|---|---|---|---|
| 07.0101 | Dental Assistant | A | A | A | B |
| 07.0102 | Dental Assistant (Assoc. Degree) | A | A | A | B |
| 07.0103 | Dental Laboratory Technician | A | B | A | C |
| 07.0200 | Medical Laboratory | A | A | A | B |
| 07.0201 | Cytology | C | A | B | A |
| 07.0202 | Histologist | C | A | B | A |
| 04.0203 | Medical Laboratory Assistant | A | A | A | B |
| 07.0204 | Hematology | C | A | B | A |
| 07.0300 | Nursing | A | A | A | B |
| 07.0301 | Nursing (Assoc. Degree) | A | A | A | B |
| 07.0302 | Practical (Voc'l) Nurse | A | A | A | B |
| 04.0303 | Nursing Aid | C | A | B | A |
| 07.0304 | Psychiatric Aide | B | B | B | B |
| 07.0305 | Surgical Technician (Oper. Room Tech.) | A | A | A | B |
| 07.0306 | Obstetrical Technician | C | B | C | B |
| 07.0307 | Home Health Aide | C | B | C | B |
| 07.0308 | School Health Aide | C | B | C | B |
| 07.0400 | Rehabilitation | B | A | A | B |
| 07.0401 | Occupational Therapist | A | A | A | B |
| 07.0402 | Physical Therapist | A | A | A | B |
| 07.0403 | Prosthetics | B | A | B | B |
| 07.0404 | Orthotics | B | B | A | B |
| 07.0500 | Radiologic (Health Occupations) | A | A | A | B |
| 07.0501 | Radiologic Technology (X-Ray) | A | A | A | B |
| 07.0502 | Radiation Therapy | A | A | A | B |
| 07.0503 | Nuclear Medical Technology | A | A | A | B |
| 07.0600 | Ophthalmic | B | B | B | B |
| 07.0601 | Ophthalmic Dispensing | B | B | B | B |
| 07.0602 | Orthoptics | B | B | B | B |
| 07.0603 | Optometrist Assistant | B | B | B | B |
| 07.0700 | Environmental Health | B | A | A | B |
| 07.0701 | Environmental Health Ass't. | B | A | A | B |
| 07.0702 | Radiological Health Technician | A | A | A | B |
| 07.0703 | Sanitarian Assistant | B | B | B | B |
| 07.0800 | Mental Health Technology | C | A | B | A |
| 07.0801 | Mental Health Technician | C | A | B | A |
| 07.0802 | Mental Retardation Aide | C | A | B | A |
| 07.0900 | Health Occupations Assistant | B | A | B | B |
| 07.0901 | Electroencephalograph Technician | A | A | A | B |

| Office of Education Code Number | Occupation or Course Name | Differential Cost Priority | Manpower Priority | Average Priority On Which Funding Is To Be Made | Economic Efficient Priority |
|---|---|---|---|---|---|
| 07.0902 | Electrocardiograph Technician | A | A | A | B |
| 07.0903 | Inhalation Therapy | A | A | A | B |
| 07.0904 | Medical Assistant | C | A | B | A |
| 07.0905 | Central Supply Technical | C | C | C | C |
| 07.0906 | Community Health Aid | C | A | B | A |
| 07.0907 | Medical Emergency Technician | B | A | A | B |
| 07.0908 | Food Service Health Supervisory | C | B | C | B |
| 07.0909 | Mortuary Science | C | C | C | C |
| 07.9900 | Health Occupations Education | B | B | B | B |
| 09.0200 | Home Economist Assistant | C | C | C | C |
| 09.0201 | Care and Guidance of Children | B | C | B | C |
| 09.0202 | Clothing, Management, Prod. & Ser. | C | D | C | C |
| 09.0203 | Food Management, Production & Service | A | C | B | C |
| 09.0204 | Home Furnishing, Equip. Services | C | D | D | C |
| 09.0205 | Institution & Home Management Serv. | B | C | C | C |
| 14.0100 | Accounting & Computer - General | C | B | C | B |
| 14.0102 | Bookkeeping | C | C | C | C |
| 14.0103 | Cashiers | C | C | C | C |
| 14.0104 | Machine Operators | B | B | B | B |
| 14.0105 | Tellers | C | B | C | B |
| 14.0200 | Business Data Processing | A | A | A | B |
| 14.0201 | Computer & Console Operators | A | A | A | B |
| 14.0202 | Keypunch, Coding & Oper. Equipment | C | C | C | C |
| 14.0203 | Computer Programmers | A | B | B | C |
| 14.0204 | Systems Analysts | A | A | A | B |
| 14.0300 | Filing, Office Machines & General Office | C | C | C | C |
| 14.0301 | Duplicating Machine Operators | C | C | C | C |
| 14.0302 | File Clerk | C | D | C | C |
| 14.0303 | General Office Clerks | C | B | C | B |
| 14.0400 | Information, Commun. Assistant | C | C | C | C |
| 14.0401 | Communication Systems Clerks | C | C | C | C |
| 14.0402 | Correspondence Clerks | C | C | C | C |
| 14.0403 | Mail & Postal Clerks | C | C | C | C |
| 14.0404 | Mail - Preparing & Mail Hand. Operator | C | C | C | C |

| Office of Education Code Number | Occupation or Course Name | Differential Cost Priority | Manpower Priority | Average Priority On Which Funding Is To Be Made | Economic Efficient Priority |
|---|---|---|---|---|---|
| 14.0405 | Messengers & Office Boys and Girls | C | D | D | C |
| 14.0406 | Receptionist & Inform. Clerks | C | D | C | C |
| 14.0500 | Material Support Occupations | C | C | C | C |
| 14.0501 | Planning & Prod. Clerks | C | C | C | C |
| 14.0502 | Quality Control Clerks | C | C | C | C |
| 14.0503 | Shipping & Receiving Clerks | C | C | C | C |
| 14.0504 | Stock & Inventory Clerks | C | C | C | C |
| 14.0505 | Traffic, Rate, & Transport. Clerks | C | C | C | C |
| 14.0600 | Personnel Administrator | C | C | C | C |
| 14.0601 | Educ. Ass't & Training Specialists | C | D | C | C |
| 14.0602 | Interviewers & Test Technicians | C | C | C | C |
| 14.0603 | Personnel Assistant | C | C | C | C |
| 14.0700 | Steno, Secretarial & Rel. Occupations | B | A | B | B |
| 14.0701 | Executive Secretary | B | A | A | B |
| 14.0702 | Secretaries | B | A | B | B |
| 14.0703 | Stenographers | B | A | B | B |
| 14.0800 | Supv. & Admin. Manage. Occupations | C | C | C | C |
| 14.0801 | Administrative Assistant | C | C | C | C |
| 14.0802 | Budget Management Analysts | C | C | C | C |
| 14.0803 | Clerical Office Supv. | C | C | C | C |
| 14.0804 | Data-Method & System-Proced. Analyst | C | C | C | C |
| 14.0805 | Office Managers and Chief Clerks | C | C | C | C |
| 14.0900 | Typing and Related Occupa. | C | A | B | A |
| 14.0901 | Clerk-Typist | C | A | B | A |
| 14.0902 | Typists | C | A | B | A |
| 16.0100 | Engineering-Related Tech. | C | A | B | A |
| 16.0101 | Aeronautical Technology | C | A | B | A |
| 16.0103 | Architectural Technician | B | A | B | B |
| 16.0104 | Automotive Technician | B | A | B | B |
| 16.0105 | Chemical Technology | B | A | A | B |
| 16.0106 | Civil Technology | B | A | B | B |
| 16.0107 | Electrical Technician | B | A | B | B |
| 16.0108 | Electronic Technician | B | B | B | B |
| 16.0109 | Electromechanical Technician | B | B | B | B |
| 16.0112 | Instrumental Technology | B | A | B | B |
| 16.0113 | Mechanical Technology | B | B | B | B |

| Office of Education Code Number | Occupation or Course Name | Differential Cost Priority | Manpower Priority | Average Priority On Which Funding Is To Be Made | Economic Efficient Priority |
|---|---|---|---|---|---|
| 16.0114 | Metallurgical Technology | B | B | B | B |
| 16.0115 | Nuclear Technology | B | A | A | B |
| 16.0116 | Petroleum Technician | B | B | B | B |
| 16.0117 | Scientific Data Process. | B | A | B | B |
| 16.0400 | Office Related Tech. | C | C | C | C |
| 16.0601 | Commercial Pilot Training | C | C | C | C |
| 16.0602 | Fire and Fire Safety Tech. | B | A | B | B |
| 16.0603 | Forestry Technician | B | A | B | B |
| 16.0605 | Police Science Technician | B | A | A | B |
| 16.9901 | Air Pollution Tech. | B | A | A | B |
| 16.9902 | Water & Waste Water Technology | B | A | B | B |
| 17.0100 | Air Conditioning | A | A | B | B |
| 17.0101 | Cooling | B | A | A | B |
| 17.0102 | Heating | C | A | B | A |
| 17.0108 | Ventilating (Filtering & Humidity) | C | A | B | A |
| 17.0200 | Appliance Repair | C | B | B | B |
| 17.0201 | Electrical Appliances Repair | B | B | B | B |
| 17.0202 | Gas Appliances Repair | C | B | B | B |
| 17.0300 | Automotive Services | A | A | A | B |
| 17.0301 | Body and Fender Repairs | A | B | B | C |
| 17.0302 | Mechanics (Auto) | A | A | A | B |
| 17.0400 | Aviation Occupations | B | C | B | C |
| 17.0401 | Aircraft Maintenance | A | B | A | C |
| 17.0402 | Aircraft Operations | A | C | B | C |
| 17.0403 | Ground Operations | A | C | B | C |
| 17.0500 | Blueprint Reading | C | B | B | B |
| 17.0600 | Business Machine Maintenance | B | A | A | B |
| 17.0700 | Commercial Art Occupation | C | C | C | C |
| 17.0701 | Interior Decorating | C | C | C | C |
| 17.0702 | Window Display | B | C | B | C |
| 17.0703 | Designer | C | C | C | C |
| 17.0800 | Commercial Fishery Occupation | B | C | C | C |
| 17.0801 | Seamanship | C | D | D | C |
| 17.0802 | Ship & Boat Oper. & Maintenance | B | B | B | B |
| 17.0900 | Commercial Photography Occupations | C | C | C | C |
| 17.0901 | Photo. Lab. & Darkroom Occupations | C | C | C | C |
| 17.1000 | Construction & Bldg. Trades | C | B | B | B |
| 17.1001 | Carpentry | C | C | C | C |
| 17.1002 | Electricity (Construction) | C | B | B | B |
| 17.1003 | Heavy Equipment Operation and Maintenance | B | B | B | B |
| 17.1004 | Masonry | C | C | C | C |

| Office of Education Code Number | Occupation or Course Name | Differential Cost Priority | Manpower Priority | Average Priority On Which Funding Is To Be Made | Economic Efficient Priority |
|---|---|---|---|---|---|
| 17.1005 | Painting & Decorating | C | C | C | C |
| 17.1006 | Plastering | C | D | C | C |
| 17.1007 | Plumbing & Pipefitting | B | B | B | B |
| 17.1008 | Dry Wall Installation | C | B | B | B |
| 17.1009 | Glazing | C | C | C | C |
| 17.1010 | Roofing | B | C | B | C |
| 17.1100 | Custodial Services | C | C | C | C |
| 17.1200 | Diesal Mechanic | B | B | B | B |
| 17.1300 | Drafting | C | S | B | S |
| 17.1400 | Electrical Occupations | B | B | B | B |
| 17.1401 | Industrial Electrician | B | B | B | B |
| 17.1402 | Lineman | C | C | C | C |
| 17.1403 | Motor Repairman | B | B | B | B |
| 17.1500 | Electronics Occupations | A | C | B | C |
| 17.1501 | Communications | C | C | C | C |
| 17.1502 | Industrial Electronics | A | C | B | C |
| 17.1503 | Radio/Television Repair | B | B | B | B |
| 17.1600 | Fabric Maintenance-General | C | C | C | C |
| 17.1601 | Dry Cleaning | C | C | C | C |
| 17.1602 | Laundering | C | C | C | C |
| 17.1700 | Foremanship, Supv. & Management | C | C | C | C |
| 17.1900 | Graphic Arts Occupations | A | C | B | C |
| 17.1901 | Composition, Makeup & Typesetting | C | D | C | C |
| 17.1902 | Printing Press Operator | A | C | C | C |
| 17.1903 | Lithography, Photography & Platemaking | B | B | B | B |
| 17.1904 | Photoengraving | A | C | B | C |
| 17.1905 | Silk Screen Making & Printing | B | C | C | C |
| 17.1906 | Bookbinding | B | C | C | C |
| 17.2000 | Industrial Atomic Energy | A | A | A | B |
| 17.2001 | Installation, Oper. & Maint. Reactors | B | A | B | B |
| 17.2002 | Radiography | A | A | A | B |
| 17.2003 | Industrial Use of Radioisotopes | A | A | A | B |
| 17.2100 | Instrument Maintenance & Repair | A | B | A | C |
| 17.2101 | Instruments Repair (Other than Watch) | A | B | A | C |
| 17.2102 | Watchmaking & Repair | C | C | C | C |
| 17.2200 | Maritime Occupations | C | D | D | C |
| 17.2300 | Metalworking | B | C | B | C |
| 17.2301 | Foundry | B | C | B | C |
| 17.2302 | Machine Shop | B | A | A | B |

| Office of Education Code Number | Occupation or Course Name | Differential Cost Priority | Manpower Priority | Average Priority On Which Funding Is To Be Made | Economic Efficient Priority |
|---|---|---|---|---|---|
| 17.2303 | Machine Tool Operator (Semi-Skill.) | B | B | B | B |
| 17.2304 | Metal Trades, Combined | B | C | B | C |
| 17.2305 | Sheet Metal | B | A | B | B |
| 17.2306 | Welding & Cutting | B | B | B | B |
| 17.2307 | Tool & Die Making | A | A | A | B |
| 17.2308 | Die Sinking | A | A | A | B |
| 17.2309 | Metal Patternmaking | B | B | B | B |
| 17.2400 | Metallurgy | B | B | B | B |
| 17.2601 | Barbering | C | C | C | C |
| 17.2602 | Cosmetology | B | B | B | B |
| 17.2700 | Plastics Occupations | B | B | B | B |
| 17.2801 | Fireman Training | B | B | B | B |
| 17.2802 | Law Enforcement Training | B | B | B | B |
| 17.2900 | Quantity Food Occupation | B | B | B | B |
| 17.2901 | Baker | B | D | C | D |
| 17.2902 | Cook/Chef | B | B | B | B |
| 17.2903 | Meat Cutter | B | C | B | C |
| 17.2904 | Waiter/Waitress | C | B | B | B |
| 17.3000 | Refrigeration | B | A | A | B |
| 17.3001 | Small Engine Repair Inter. comb. | B | B | B | B |
| 17.3200 | Stationary Energy Source | A | A | A | B |
| 17.3201 | Electric Power & Generating Plants | B | B | B | B |
| 17.3202 | Pumping Plants | C | C | C | C |
| 17.3301 | Dressmaking | C | D | D | C |
| 17.3302 | Tailoring | C | C | C | C |
| 17.3400 | Leatherworking | C | C | C | C |
| 17.3401 | Shoe Manufacturing | C | C | C | C |
| 17.3402 | Shoe Repair | C | C | C | C |
| 17.3500 | Upholstering | C | C | C | C |
| 17.3600 | Woodworking | C | B | C | B |
| 17.3601 | Millwork & Cabinet Making | B | C | C | |
| 01.9902 | Ag. Cooperative Educ. | | | A | |
| 04.9902 | Marketing Cooperative (D.O.) | | | A | |
| 07.9902 | Health Occupations Co-Op | | | A | |
| 09.9902 | Home Economics Cooperative (H.E.R.O.) | | | A | |
| 14.9902 | Office Occupations Co-Op (O.O.) | | | A | |
| 16.0111 | Quality Control Technology | | | B | |
| 16.0199 | Numerical Control Tech. | | | A | |
| 16.0199 | Optics Technology | | | B | |
| 16.0199 | Plastics Technology | | | B | |
| 16.0199 | Radio & Television Engineering | | | B | |

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|---|---|---|---|---|---|
| 17.9902 | Industrial Cooperative (D.O., I.C.E.) | | | A | |
| 18.9902 | Interrelated Cooperative Education | | | A | |
| 18.9906 | Interrelated Cooperative Education | | | A | |
| 18.9906 | Special Education Cooperative Education | | | A | |
| 18.9909 | Special Education In-School Voc. Ed. Programs | | | B | |
| | Tech. Math I | | | D | |
| | Tech. Math II | | | D | |
| | Tech. Physics I | | | D | |
| | Tech. Physics II | | | D | |
| | General Physics I | | | D | |
| | General Physics II | | | D | |
| | Hist. & App. of Motion Pictures | | | D | |
| | Beginning Reporting | | | D | |
| | Introduction to Advertising | | | D | |
| | Federal Government | | | D | |
| | State and Local Govt. | | | D | |
| | Human Relations | | | D | |
| | Principles of Economics | | | D | |
| | Hist. of Current Problems | | | D | |
| | Human Relations | | | D | |
| | Rhetoric & Comp. I | | | D | |
| | Rhetoric & Comp. II | | | D | |
| | Elementary Tech. Math | | | D | |
| | Basic Tech. Math | | | D | |
| | Tech. Science | | | D | |
| | Introduction to Anc. and Med. Art | | | D | |
| | Advanced Technical Math | | | D | |
| | Intro. to Psychology II | | | D | |
| | Developmental Psychology | | | D | |
| | Social Science I | | | D | |
| | Applied Physics I | | | D | |
| | Math I | | | D | |
| | Math II | | | D | |
| | Intro. to Psychology | | | D | |
| | Paramedical Relationships | | | D | |
| | Intro. to Sociology | | | D | |
| | American National Govt. | | | D | |
| | State and Local Govts. | | | D | |
| | Physical Science | | | D | |

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|---|---|---|---|---|---|
| | Inter. Algebra | | | D | |
| | Plane Trigonometry | | | D | |
| | Business Law I | | | D | |
| | Business & Technical Math | | | D | |
| | College Algebra | | | D | |
| | Introduction to Physical Science | | | D | |